

CAMOS



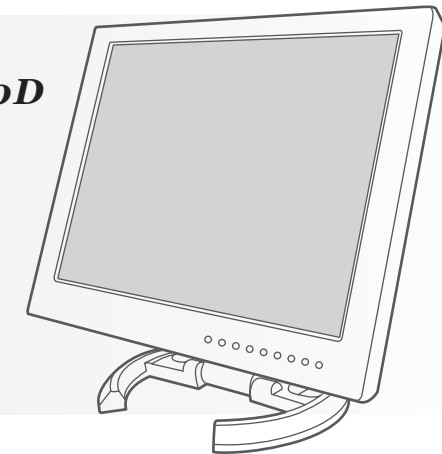
INSTRUCTION MANUAL

15"/17"/19" DIGITAL TFT LCD COLOR MONITOR

CAMOS

MM-1510D/MM-1710D/MM-1910D

Thank you for choosing this product.
Please read this instruction manual carefully before
operating this product.



Contents

1. Safety Rules	3
2. Before Use	8
3. Special Features of the product	10
4. Terms of part	11
5. Remote Control	12
6. Functions	14
7. Connections	24
8. Specifications	26
9. Changing Remote Control Battery	32

1. Safety Rules

Please read the “Safety Rules” carefully before using this product. Following of the safety rules prevents users from any damage related with the misuse of this product.
It is very important that users follow these safety rules. We state “Caution” and “Warning” to clarify any potential for damage associated with misuse of the product.

**Warning**

May cause bodily harm or even death if users ignore warnings in the safety rules.

**Caution**

May cause bodily harm or even death if users ignore cautions in the safety rules.

About signs

“Precautions”

“Do not”

“Follow directions carefully”

**Warning**

Place the product where it doesn't prevent the driver from driving.
--- The driver's view of sight should not be blocked.

Do not watch or operate the product while driving.
--- This may cause a major accident.

Do not place the product near the passenger-side airbag.
--- Airbags may not operate properly or may cause personal damage and accident when accidentally opening.

Do not get product wet and operate with wet hands.
--- This may cause electric shock.

- ⊘ Do not use in bathtub. Do not pull the plug with wet hands.
--- This may cause electric shock.
- ⊘ Do not use unapproved power voltage.
--- This may cause fire or electric shock.
- ⊘ Do not use unapproved Cigarette Lighter Adapter.
--- This may cause fire ,electric shock and/or malfunction.
- ⊘ Do not damage or bend electric cord. Do not place heavy objects on electric cord.
--- This may cause fire from electric sparks.
- ⊘ Do not use damaged electric cord.
--- This may cause fire and/or electric shock.
- ⊘ Do not put pins or needles into the product or electric cord of product.
--- If this happens, stop the product operation immediately. Continuous use may cause fire, electric shock and/or malfunction.
- ⊘ Do not place any containers with water or any small metal objects on top of the product or nearby it.
--- Unplug the product when water or metal comes in contact with the product. Continuous use may cause fire, electric shock and/or malfunction.
- ⊘ Stop using the product immediately when you drop it or damage the outside shell.
--- Continuous use may cause fire, electric shock and/or malfunction.
- ⊘ Be careful when thunder and lighting occurs.
--- There is a danger of electric shock.
- ⊘ Do not use non-specified double socket and extended car battery cord.
--- This may cause excess heat and/or fire.
- ⊘ Do not attempt to open, disassemble or repair the product by any person except an authorized service dealer.
--- This may cause electric shock and/or malfunction. You should request an authorized service dealer for any inspection and repair of the product.

Caution

- ! Do not put the product in a place where sudden temperature increase occurs such as the vehicle's dashboard.
- ! Do not place the product where high temperature and/or the direct ray of the sun occurs.
--- This may cause fire, electric shock and/or malfunction.
- ! Do not put the product in an unstable place where the product may be exposed to shock and/or impact.
--- The product may fall and be damaged.
- ! Do not place electric cord near a heating product.
--- The cord surface may melt and cause fire and/or electric shock.
- ! Do not press or drop LCD panel.
--- You should not give any shock on LCD panel because it may cause damage.
- ! Always clean the cigarette lighter socket before using product.
--- Bad connection may cause fire.
- ! Clean electric socket area often.
--- Dust in the area may cause fire.
- ! Keep electric cord properly positioned.
--- An improperly positioned electric cord may cause fire or electric shock when metal material is in contact with the power source.

- ❗ Unplug the product and remove cords when moving.
--- It may damage cords and cause fire and/or electric shock.
- ❗ The car engine should be running when you use the product in a car.
--- Without the engine running, you may have excessive discharge of the car battery.
- ❗ Do not pull the cord line when you unplug it.
--- Damaged cords may cause fire and/or electric shock.
- ❗ Hold the plug when you unplug the product. Put a battery in the remote control properly with +, - signs as directed in this manual.
--- Improper use of batteries may cause fire and/or damage.
- ❗ Unplug the product when you don't use it for a long period of time.
--- Insulation may cause electric shock, electric leak and/or fire.
- ❗ Unplug the product when you clean or care for it.
--- Not unplugging product may cause electric shock.
- ❗ Do not watch Monitor for a long period of time.
--- This may damage your eyesight.
- ❗ When you transport the product, remove all cords and do not give any shock.
--- This may cause a malfunction.
- ❗ Do not place volatile materials such as insecticides on the product. The product should not come in contact with rubber or vinyl for a long period of time.
--- The surface of the product may change and paint may peel off.

If you find any strange occurrences or malfunction in the product or any foreign substance gets into the product, please contact the authorized retailer where you purchased the product.

- Do not use the product in the following locations.
--- This may cause malfunction.
 - In direct rays of the sun and near heating products
 - High in humidity and with bad ventilation
 - Dusty or oily locations
 - Low temperatures
 - Unstable environment

2. Before Use

- To safely use the product, please read the user's manual carefully before use.
- Connect all lines as directed in the product connection map in the manual.
- Do not touch the LCD panel.
- Use the product at the temperature range of 0°C ~ 50°C .
- Screen may be a little dark when the product is operated in low temperature areas. Screen will be shown normal luminosity after a few minutes.
- Do not disassemble and modify the product in any way. This may cause fire and/or electric shock.
- When you install the product in a car, do not set a volume level too loud for others to hear outside.
- When you install the product in a car and watch monitor, the car engine should be running as there might occur excessive discharge of the car battery.
- Any liquid leaking into product may cause malfunction.

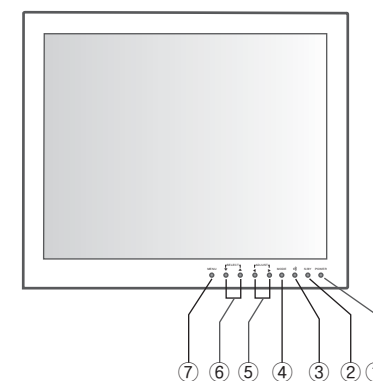
■ Precautions (when you use the product in a car)

- The driver should not use the product while he/she is driving.
- Quality of pictures on screen may vary depending on the radio field strength in different locations. You should use video equipment where you experience weak radio field strength.
- Follow traffic laws when you use the Navigation Route System.
- Be cautious of humidity and shock when you use the product in a car.
- The product should not be placed on the dashboard or near engine
- Cover the product when exposed to direct rays of the sun for a long period of time. (You should keep the product at a temperature range of -20°C ~ 60°C.)

3. Special Features of the Product

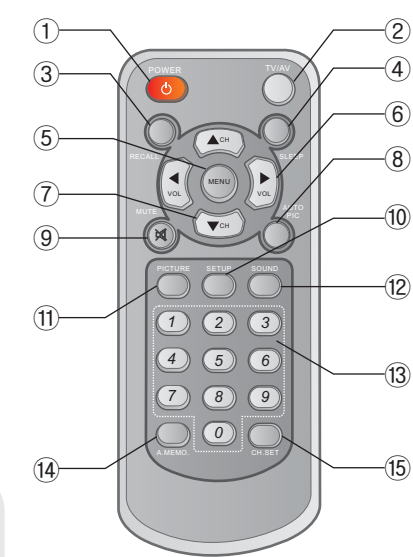
- Applied high resolution and low reflection DIGITAL TFT LCD
- All electronic control functions
- Convenient Graphic OSD
- All functions are displayed on screen (OSD function)
- System auto recognition function(PAL/ NTSC/ AUTO)
- PC auto adjustment
- 7 Languages display
(English, French, German, Spanish, Italian, Japanese, Korean)
- MODE selection function(DSUB ANALOG, DVI DIGITAL, AV, S-VIDEO)
- One-touch Dimmer(Remote control)
- STAND BY Function
- Low Power consumption

4. Terms of part



① POWER	Power ON/OFF button.
② S/BY LED	Displays STAND BY and ON/OFF
③ REMOTE SENSOR 	Sensor for receiving signal from the remote control.
④ MODE	DSUB ANALOG / DVI DIGITAL / AV / S-VIDEO selection button.
⑤ ADJUST  	Button to level control.
⑥ SELECT  	Button to select Menu and Mode.
⑦ MENU	Selects menu and changes function.

5. Remote Control



- ① POWER Power ON/OFF Key
- ② TV/AV external video, s-video, DVI, DSUB analog
- ③ RECALL Displays present status
- ⑤ MENU Selects menu and changes function
- ⑥ ◀▶VOL Controls Volume and changes MENU level
- ⑦ ▼▲CH Selects channel and moves to MENU
- ⑧ AUTO PIC Selects DYNAMIC, NORMAL, MILD, USER for PICTURE
- ⑩ SETUP Setup selection button
- ⑪ PICTURE Picture selection button

- ④ SLEEP
 - ⑨ MUTE
 - ⑫ SOUND
 - ⑬ 0~9KEY
 - ⑭ A.MEMO.
 - ⑮ CH.SET
- No use button

6. Functions

※ (), it means a remote control button.

① POWER (POWER)

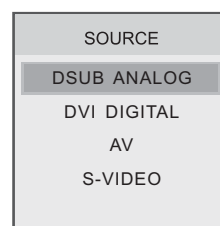
- POWER ON/OFF KEY

- ① Push POWER(POWER) button. POWER is on.
- ② Push POWER (POWER) button again. POWER is OFF.

② MODE(TV/AV)

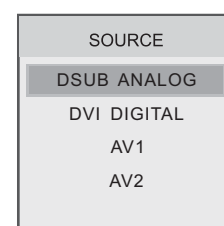
- It is function to change external video signals to DSUB ANALOG/ DVI/ VIDEO/ S-VIDEO

- DSUB ANALOG/ DVI DIGITAL/ AV/ S-VIDEO



※ Adjust it with CH ▲▼

- DSUB ANALOG/ DVI DIGITAL/ AV1/ AV2 (OPTION)

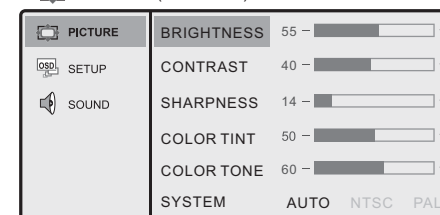


(Option)

③ MENU (MENU)

AV/ S-VIDEO

- PICTURE(PICTURE)

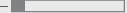
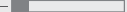


※ With VOL ►, go to SUB MENU. After adjusting in SUB MENU, press MENU to exit.

- ① BRIGHTNESS Adjust the brightness of video without affecting RGB's brightness.
- ② CONTRAST Adjust the contrast of video without affecting RGB's contrast.
- ③ SHARPNESS Adjust the sharpness of video image.
- ④ COLOR TINT Change the richness of color.
- ⑤ COLOR TONE Change the tone of color.
- ⑥ SYSTEM Change broadcast system NTSC, PAL, AUTO

※ Press  MENU button to go to the Main menu.

■ SETUP(SETUP)

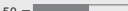
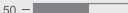
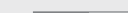
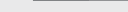
 PICTURE	LANGUAGE	▶ ENGLISH
 SETUP	OSD TIME	10 —  +
 SOUND	TRANSLUCENT	14 —  +
	OSD H POS.	50 —  +
	OSD V POS.	50 —  +
	FACTORY RESET	▶ OFF

※ With VOL ▶, go to SUB MENU. After adjusting in SUB MENU, press MENU to exit.

- ① LANGUAGE Change language English, French, German, Spanish, Italian, Japanese, Korean.
- ② OSD TIME The number of seconds that the OSD will remain visible before disappearing.
- ③ TRANSLUCENT Change the opaqueness of the background of the OSD.
- ④ OSD H POS. Move the OSD Window to the horizontal direction.
- ⑤ OSD V POS. Move the OSD Window to the vertical direction.
- ⑥ FACTORY RESET A factory default reset will clear all of OSD information.

※ Press  MENU button to go to the Main menu.

■ PC (ANALOG)

 PICTURE	BRIGHTNESS	75 —  +
 COLOR	CONTRAST	50 —  +
 SETUP	H POSITION	50 —  +
 SOUND	V POSITION	50 —  +
	PHASE	14 —  +
	PIXEL FREQ.	100 —  +

※ With VOL ▶, go to SUB MENU. After adjusting in SUB MENU, press MENU to exit.

- ① BRIGHTNESS Adjust the brightness of video without affecting RGB s brightness.
- ② CONTRAST Adjust the contrast of video without affecting RGB s contrast.
- ③ H POSITION Adjust the horizontal position of the image.
- ④ V POSITION Adjust the vertical position of the image.
- ⑤ PHASE Remove the noises. When phase value is wrong, the image has vertical lines especially in 1 dot on and off.
- ⑥ PIXEL FREQ. Adjust the sampling frequency of DSUB analog signal.

※ Press  MENU button to go to the Main menu.

■ COLOR

The tone of color can be changed from red-dish white to bluish white.
The individual color components are also user customizable.

PICTURE	9300K	7300K	6500K	USER
 COLOR				
 SETUP	RED	50	50	50
 SOUND	GREEN	50	50	50
	BLUE	50	50	50

※ With VOL  , go to SUB MENU. After adjusting in SUB MENU, press MENU to exit.

① 9300K Change color temperature : Red 42 Green 52 Blue 50

② 7300K Change color temperature : Red 51 Green 46 Blue 46

③ 6500K Change color temperature : Red 40 Green 54 Blue 54

④ USER User customizable. (RED, GREEN, BLUE)

※ Press  MENU button to go to the Main menu.

PC (DVI)

■ PICTURE

 PICTURE	BRIGHTNESS	75	75	+
 COLOR	CONTRAST	50	50	+
 SETUP	H POSITION	1	1	+
 SOUND	V POSITION	50	50	+
	PHASE	50	50	+
	PIXEL FREQ.	50	50	+

※ With VOL  , go to SUB MENU. After adjusting in SUB MENU, press MENU to exit.

① BRIGHTNESS Adjust the brightness of video without affecting RGB s brightness.

※ Press  MENU button to go to the Main menu.

∴ DISPLAY MODES (MM-1510D)

For the display modes listed below, the screen image has been optimized during manufacture.

Mode	Resolution	Horizontal Frequency(KHz)	Vertical Frequency(Hz)	Pixel Clock Frequency(MHz)	Sync Polarity (H/V)
VGA	720 x 400	31.469	70.087	28.322	- / +
	640 x 480	31.469	59.940	25.175	- / -
	640 x 480	37.500	75.000	31.500	- / -
SVGA	800 x 600	37.880	60.300	40.000	+ / +
	800 x 600	46.875	75.000	49.500	+ / +
XGA	1024 x 768	48.363	60.004	65.000	- / -
	1024 x 768	60.023	75.029	78.750	+ / +

∴ DISPLAY MODES (MM-1710D/MM-1910D)

For the display modes listed below, the screen image has been optimized during manufacture.

Mode	Resolution	Horizontal Frequency(KHz)	Vertical Frequency(Hz)	Pixel Clock Frequency(MHz)	Sync Polarity (H/V)
VGA	720 x 400	31.469	70.087	28.322	- / +
	640 x 480	31.469	59.940	25.175	- / -
	640 x 480	37.500	75.000	31.500	- / -
SVGA	800 x 600	37.880	60.300	40.000	+ / +
	800 x 600	46.875	75.000	49.500	+ / +
XGA	1024 x 768	48.363	60.004	65.000	- / -
	1024 x 768	60.023	75.029	78.750	+ / +
SXGA	1280 x 1024	63.981	60.02	108.000	+ / +
	1280 x 1024	79.976	75.025	135.000	+ / +

- ④ **RECALL** Displays present status and volume level.
- ⑤ **AUTO PIC** Selects DYNAMIC, NORMAL, MILD, USER for PICTURE
- ⑥ **TV/AV** Select, external D-sub analog, DVI, video, s-video.

⑩ **OSD MESSAGE**

OUT OF RANGE



① The screen shows this when signal is out of range

NO SIGNAL



② The screen shows this when there is no signal.

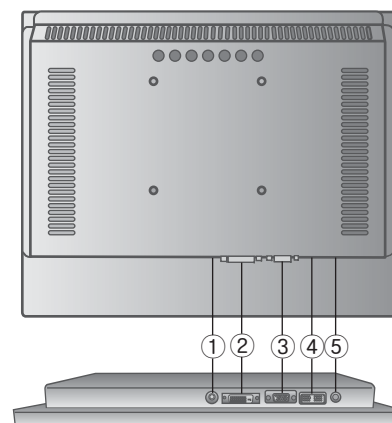
CHECK CABLE



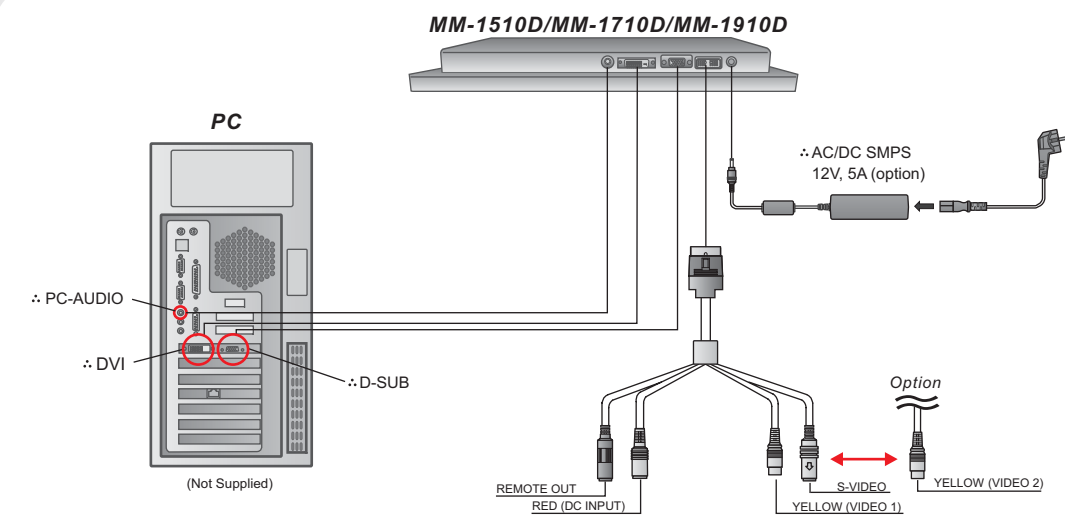
③ The screen shows this when the signal cable is not connected.

7. Connections

Backside, monitor stand detached
(without monitor stand / distance between each mounting hole 75mm)



① PC-AUDIO IN	Audio input DSUB ANALOG, DVI DIGITAL mode
② DVI IN	DVI DIGITAL input
③ DSUB IN	DSUB ANALOG input
④ MULTI CONNECTOR	DC12V, VIDEO, S-VIDEO input
⑤ DC IN 12V	DC 12V Input



8. Specifications

MM-1510D

I T E M		SPECIFICATION
LCD PANEL	SIZE	38.0cm (15.0 INCH)
	NUMBER OF PIXELS	1024 X 768
	PIXEL PITCH	0.297(H) X 0.297(V)mm
	BRIGHTNESS	450cd/ m ²
	CONTRAST RATIO	300 : 1
	VIEW ANGLE CR≥10	70° / 70° / 60° / 65°(L/R/U/D)
INPUT SIGNAL	DISPLAY COLOR	16.2M
	VIDEO	DIGITAL SIGNAL (DVI)
		ANALOG R.G.B 0.7Vp-p, TTL SEPARATE (D-SUB)
		COMPOSITE VIDEO (VHS)
		S-VIDEO (SVHS)
FREQUENCY	HORIZONTAL	30~60KHz
	VERTICAL	56~75 Hz

I T E M		SPECIFICATION
USER CONTROLS		POWER, MODE, ADJUST◀▶, SELECT▼▲, MENU
OSD DISPLAY LANGUAGES		S/BY LED, REMOTE SENSOR
7 LANGUAGES		
POWER SUPPLY	VOLTAGE CONSUMPTION	DC11-16V (AT 12V) 30WATT(AT 12VDC)
DIMENSION (W X H X D)		356(W) X 289(H) X 40.5(D)mm
OPERATING TEMPERATURE		0 °C~ + 50 °C
STORAGE TEMPERATURE		-20 °C~ + 60 °C
WEIGHT		4.5Kgf
ACCESSORIES		REMOTE CONTROL (WITH BATTERY) -----1 MONITOR CABLE -----1 CHANGE CABLE(OPTION) VESA STAND(OPTION) AC/DC POWER ADAPTER (OPTION)

* Design and specifications are subject to change without notice.

MM-1710D

I T E M		SPECIFICATION
LCD PANEL	SIZE	43.18cm (17.0 INCH)
	NUMBER OF PIXELS	1280 X 1024
	PIXEL PITCH	0.264(H) X 0.264(V)mm
	BRIGHTNESS	300cd/㎡
	CONTRAST RATIO	500 : 1
	VIEW ANGLE CR≥5	75° / 75° / 75° / 60°(L/R/U/D)
	DISPLAY COLOR	16.2M
INPUT SIGNAL	VIDEO	DIGITAL SIGNAL (DVI)
		ANALOG R.G.B 0.7Vp-p, TTL SEPARATE (DSUB)
		COMPOSITE VIDEO (VHS)
		S-VIDEO(SVHS)
FREQUENCY	HORIZONTAL	30~80KHz(AUTOMATIC)
	VERTICAL	56~75 Hz(AUTOMATIC)

I T E M		SPECIFICATION
USER CONTROLS		POWER, MENU, SELECT, ▼▲, ◀▶ S/BY LED, REMOTE SENSOR
OSD DISPLAY LANGUAGES		7 LANGUAGES
POWER SUPPLY	VOLTAGE CONSUMPTION	DC11-16V (AT 12V) 36WATT
DIMENSION (W X H X D) OPERATING TEMPERATURE STORAGE TEMPERATURE WEIGHT		389(W) X 331(H) X 48(D)mm 0 °C~ + 50 °C -20 °C~ + 60 °C 5.5Kgf
ACCESSORIES		REMOTE CONTROL (WITH BATTERY) -----1 MONITOR CABLE -----1 CHANGE CABLE (OPTION) VESA STAND (OPTION) AC/DC POWER ADAPTER (OPTION)

※ Design and specifications are subject to change without notice.

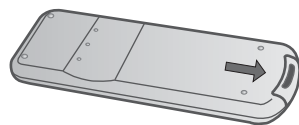
MM-1910D

I T E M		SPECIFICATION
LCD PANEL	SIZE	48.24cm (19.0 INCH)
	NUMBER OF PIXELS	1280 X 1024
	PIXEL PITCH	0.294(H) X 0.294(V)mm
	BRIGHTNESS	250"
	CONTRAST RATIO	500 : 1
	VIEW ANGLE CR≥5	85° / 85° / 85° / 85°(L/R/U/D)
	DISPLAY COLOR	16.2M
INPUT SIGNAL	VIDEO	DIGITAL SIGNAL (DVI)
		ANALOG R.G.B 0.7Vp-p, TTL SEPARATE (DSUB)
		COMPOSITE VIDEO (VHS)
		S-VIDEO(SVHS)
FREQUENCY	HORIZONTAL	30~80KHz(AUTOMATIC)
	VERTICAL	56~75 Hz(AUTOMATIC)

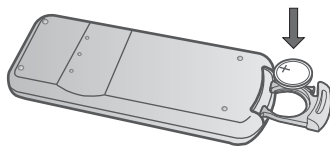
I T E M		SPECIFICATION
USER CONTROLS		POWER, MENU, SELECT, ▼▲, ◀▶ S/BY LED, REMOTE SENSOR
OSD DISPLAY LANGUAGES		7 LANGUAGES
POWER SUPPLY	VOLTAGE CONSUMPTION	DC11-16V (AT 12V) 36WATT
DIMENSION (W X H X D) OPERATING TEMPERATURE STORAGE TEMPERATURE WEIGHT		435(W) X 368(H) X 49(D)mm 0 °C~ + 50 °C -20 °C~ + 60 °C 6.0Kgf
ACCESSORIES		REMOTE CONTROL (WITH BATTERY) -----1 MONITOR CABLE -----1 CHANGE CABLE (OPTION) VESA STAND (OPTION) AC/DC POWER ADAPTER (OPTION)

※ Design and specifications are subject to change without notice.

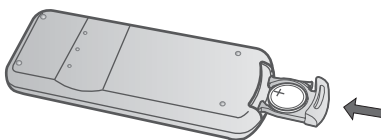
9. Changing Remote Control Battery



1. Slide and open the battery cover.



2. Insert new battery and ensure that the polarities are correct when inserting.



3. Slide and close the battery cover.

MEMO

MEMO

MEMO

MEMO



Printed in KOREA